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ABSTRACT

This paper analyzes the role the community college plays as a bridge to opportunity for the working poor and economically disadvantaged. Because educating the disadvantaged is expensive and often under-funded--particularly in the area of basic or remedial education--many community colleges opt to focus on educating more advantaged students in programs popular with employers and policy makers. This paper suggests that the delivery methods for developmental classes be retooled, particularly in light of the high dropout rate in these programs. The author addresses the following issues: the career pathways approach to developmental education, the reasons why more community colleges have not adopted this approach, and the potential benefits to community colleges of rethinking developmental offerings and other programs for disadvantaged students according to the career pathways model. Table 1 examines the digital divide in light of wage and salary differences for unskilled, semi-skilled, skilled, and professional technical jobs. The differences in salary and wages range from $7.52 an hour for a medical orderly/attendant to $57,000 a year for a mechanical engineer. Table 2 examines career pathways program features, from Workplace Basics 1 to Associate of Science degrees. Contains two tables and six figures. (Contains 32 references.) (NB)

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The Potential of Community Colleges As Bridges to Opportunity for the Disadvantaged: Can it be Achieved on a Large Scale?

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1. Introduction

Community colleges are receiving increased attention from policy groups and funders concerned with alleviating poverty because of their potential for expanding access by disadvantaged individuals to post-secondary education and careers. To many in community college world, this attention may seem curious, since most community colleges have long served disadvantaged students. In fact, many if not most of the millions of students community colleges serve each year face at least some barriers to success in education and employment.

It is precisely because community colleges serve such large numbers of disadvantaged students that they are receiving so much attention. This interest is piqued in part by frustration among many in the anti-poverty field of the relatively small scale of efforts successful in enabling working poor individuals to advance to jobs that pay family-supporting jobs.

Some community colleges have made a concerted effort to help their students overcome barriers to success in college and careers. They do this by building strong connections both within and outside the institution that create educational "pathways" by which students can progress over time to successively higher levels of education and employment.

With the increased scrutiny of community colleges has come the realization that this potential of community colleges as a bridge to opportunity for the disadvantaged has not been realized on a wide scale. This paper explores why this is the case.

The central argument is that most community colleges fail to fully realize their bridging potential for two main reasons. First, many find it difficult to make the connections – between remedial and college-credit programs, between academic and occupational degree programs and between degree programs and jobs – that are necessary for creating pathways of advancement for disadvantaged students. Second, it is obviously expensive to serve disadvantaged students and yet community colleges tend to be poorly funded. In the hierarchy of community college

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programs, those that serve disadvantaged students are likely to be the least well funded. As a result, many community colleges opt to focus their limited resources on serving more advantaged students in programs popular with employers and policy makers, rather than to risk serving students whose success is by no means assured.

Providing the necessary services to enable disadvantaged students to succeed is costly, but not serving them well also carries costs. These include high dropout rates and public perceptions of community colleges as "revolving door" institutions.

One area in which community colleges could make a major impact in serving disadvantaged students while at the time improving their performance and image as institutions is in remedial or "developmental" education. Virtually all community colleges offer remedial courses for degree seeking students who fail to meet the entry requirements for college-level English and math. An estimated 40 percent of first-time community college freshmen take at least one remedial course. In colleges that serve large numbers of minority students, the proportion is higher. Research suggests that more than a quarter of remedial students do not complete their prescribed remedial coursework. In general, the more remedial courses students are required to take, the less likely they are to earn a degree. Because most remedial students are seeking degrees, the less-than-optimal effectiveness of remedial education would seem to be a key cause of the low completion rates for which community degree colleges are often criticized.

Even so, most colleges continue to run developmental programs in the conventional way, without much thought to their effectiveness. Few seem to consider the cost-benefit of rethinking developmental education and other programs for disadvantaged students as potential feeders of well-prepared students to their college-credit program.

This paper is organized as follows. The next section explores in more depth the potential of community colleges to connect disadvantaged students to well-paying jobs and further education. It describes the principles of the "career pathways" approach, which characterizes efforts by community colleges that have been successful in help disadvantaged students advance to higher education and careers. Section 3 examines the reasons that more community colleges have not adopted the career pathways model. Section 4 explores the potential benefits to community colleges of rethinking developmental offerings and other programs for disadvantaged students according to the career pathways model. The conclusion outlines questions for further research that is needed to help community colleges assess the cost-benefit of serving disadvantaged students more effectively and decide how best to do so.

2. The Potential: Community Colleges as Bridges to Opportunity

Digital Job Divide

Rising demand for "knowledge workers." The widespread application of computer technology has changed labor requirements across industries (Autor, Levy and Murnane 2001). Nearly every sector is experiencing demand for "knowledge workers," who not only have up-to-date technical know-how, but are able to communicate effectively, solve problems and learn rapidly as technology changes. Customer focus and business knowledge are also essential qualifications

for knowledge workers, whether they are involved in the production of advanced technology or its application. For workers, knowledge jobs will continue to offer the best pay and opportunities for advancement. Career-long learning, both on the job and in school, has become essential for job security and advancement in every field.

Growing "digital job divide." Individuals who only have a high school diploma or who lack a strong foundation of basic skills for career-long learning will increasingly find it difficult to move beyond low-wage jobs. The prospects for high school dropouts will remain bleak. Figure 1 shows the characteristics and qualifications of jobs on both sides of the digital job divide separating low-skill, dead-end jobs from knowledge jobs (represented in the arrow), which pay well and offer strong advancement opportunities.[1] Table 1 lists sample job titles at various job levels and the wages associated with each. The better paying, jobs with a future in the top portion of Figure 1 give workers greater authority to solve problems and make decisions on how they carry out their work. These jobs also carry the expectation that workers will learn whatever is necessary to carry out their jobs in the face of changing technology and work practices. Workers in the low-wage, dead-end jobs pretty much do what they are told. So while the knowledge jobs may involve greater levels of skill than the routine jobs, what distinguishes them even more is the degree of professionalism expected of workers in better jobs as opposed to the dead-end ones.

The digital job divide seems likely to continue to grow. Nearly 70 percent of all new jobs – and virtually all jobs that offer wages sufficient to support a family – require at least some education and training beyond high school, even at the entry-level (Carnevale and Reich 2000). Yet, nationally, under 60 percent (58%) of students who enter the 9th grade go on to enroll in post-secondary education (NCES 2000). Many students are not academically prepared for college. Nearly a third (29%) of first-time freshmen need to take at least one remedial course (NCES 1996).

Too many of those already in the workforce lack the broad basic skills needed to advance to well-paying, high-demand jobs in technology fields. In most poor families with children, an adult works at least part-time (20%), and usually full-time (57%) (Lazere et al. 2000). Poverty among full-time workers rose in number and share during the economic boom of the 1990s (Barrington 2000). Most welfare recipients who enter the workforce are only able to find jobs paying low-wages, often without benefits. One recent analysis found that the median wage for former recipients who were working was $6.61 per hour (Loprest 1999). Research shows that it is very difficult to work one's way out of poverty – having a job by itself does not lead to career advancement for most former welfare recipients and other low-wage workers (Mishel et al. 2001). Most low-skill workers will need some job-connected training to advance to jobs offering family-supporting wages and opportunities for advancement.

Changing workforce demographics. The lack of readiness of broad segments of the current and future workforce is a problem because those unprepared for learning beyond high school will be unable to secure jobs that enable them to support themselves and their families. It is also a problem because employers will need growing numbers of knowledge workers to staff their increasingly high tech operations and replace the many Baby Boom workers who will retire over the next twenty years.

In Chicago and throughout the U.S., the workforce is becoming increasingly diverse. Though whites will remain the largest group in the nation's labor force, the proportion of other groups is growing much faster. The Hispanic labor force will soon exceed that of blacks (Fullerton 1999). Immigrants and their children are expected to comprise more than half of the increase in the U.S. population and over the next century (Little and Triest 2001). Because many of these immigrants will have relatively low levels of education, they may not be able to support the higher levels of productivity needed to meet the living standards expected by the aging native population.

Community Colleges as Bridges to Opportunity

Education for career access and advancement. Community colleges throughout the country are responding to these new economic realities by offering programs that address the learning needs of job seekers, workers and employers. Through credit and non-credit occupational programs, community colleges are preparing students to enter into skilled technical positions that pay family-supporting wages and offer career advancement opportunities. They also provide training to upgrade the skills of incumbent workers, often under contract to employers. Where it is effective, community college occupational training furthers both the career goals of workers and the business objectives of employers. To the extent that they help local residents secure well-paying jobs and advance in their careers, and assist employers to hire, retain, and enhance the performance of their employees, community colleges have become a force in the economic development of their communities.

Accessible start toward a college degree. At the same time, community colleges in most states also seek to prepare students to transfer to four-year baccalaureate programs. Because of their relative low cost and proximity to most areas, community colleges offer a place to start toward a college degree for the many for whom the traditional four-year route is not readily accessible. This includes recent high school graduates whose families have not saved enough for them to enter directly into a four-year program or who are unsure about their direction and want to get a taste of college work before making a commitment to a major field of study. It also includes the many adults with work and family responsibilities who need to pursue their studies close to home. Challenges to affirmative action in higher education are limiting the pool of minority students who enroll at a four-year institution right out of high school and will likely mean that a growing number of minority students will enter higher education through community colleges. As it is, sixty percent of Hispanics who are in undergraduate programs in the U.S. are enrolled at community colleges, and nearly half of African-American undergraduates (46.3%) are community college students (NCES 2000).

Second chance for disadvantaged learners. The failure of school systems in inner cities and other distressed areas and the influx of immigrants into many regions of the country have brought increasing numbers of students to community colleges who are not prepared for college-level work. Approximately 40 percent of community college students take at least one remedial course (NCES 1996). At colleges with high minority student enrollment, the proportion is significantly higher. Approximately 60 percent of first-time public two-year college students in 1999-2000 who were resident aliens took at least one remedial course (NCES 2001). In many

states and localities, community colleges are responsible for adult literacy programs, which provide basic literacy, English-as-a-second-language (ESL), and GED preparation to adults who lack a high school credential. For example, the City Colleges of Chicago, one of the nation's largest community college systems, have over 50,000 students in adult education programs. Many community colleges also provide short-term job training to welfare recipients, displaced workers and other disadvantaged adults seeking to enter or re-enter the workforce.

Barriers to success. Most community college face at least some barriers to success in college and careers.[2] Over half (51.4%) are the fist in their families to attend college. Over 80 percent work at least part time; about half work full-time. As a result, nearly two-thirds (64.0%) of community college students attend college part-time, compared to fewer than one-fourth (22.0%) of students at four-year institutions. Many are adults who have been out of school for some time and are returning both to advance in their jobs and earn a college degree. About a third of community college students are 30 years of age or older; nearly half (46%) are 25 or older. Many have to care for small children in addition to working and attending school. As a result, few community college students proceed through higher education in the lock-step fashion of the "traditional" college student. Community colleges in inner cities and rural areas serve a significant number of truly disadvantaged students who can only afford to attend part-time. Their lives are often chaotic and fraught with crises that sometimes force them to "stop out" of education while they get back on their feet.[3]

Community colleges have become the largest gateway to American higher education for the surging immigrant population. Drawn by the easy access and relative low cost that community colleges offer, immigrants are flocking to community college campuses in increasing numbers to improve their English skills, train for jobs and earn college credit. In the 1999-2000 academic year, public two-year colleges served over 345,000 resident alien students. In that same year, fewer than 245,000 resident aliens enrolled in all four-year institutions combined (NCES 2001).

Career Pathways

Some community colleges have made a concerted effort to help students overcome barriers to success in college and careers. They do this by building connections between remedial, occupational and academic transfer programs to create an integrated series of "stepping stones" by which students can advance over time to successively higher levels of education and employment. Each step in this sequence is designed explicitly to prepare students coming to the college with a particular level of readiness (or lack of readiness) to advance to the next level of learning and employment.

Figure 2 shows how the pathways created in this way can help students "bridge the digital job divide" by enabling them to advance beyond low-wage, dead-end jobs to well-paying knowledge jobs in high-demand fields. These "career pathways" also lead to further education and training, which are increasingly necessary for career advancement in most fields. Table 2 summarizes the elements of career pathways programs at each level. At each point along the pathway, the objective is not only to equip students to move to the next level, but to motivate them to advance by exposing them to the opportunities available to them in terms both of education and employment.

The vision that inspires this approach was expressed as follows by Byron McClenney, president of Kingsborough Community College and former president of Community College of Denver, an institution that under Dr. McClenney's leadership gained national recognition for its success in serving disadvantaged students.

> We try to ensure that every certificate program that puts people to work is also the first step toward an associate degree, which [in turn] is designed to be the next step up the job ladder, but also the next step toward a baccalaureate program.... It's that stepping stone approach that opens up options for people because the reality is that poor people...in America have no idea what is possible in their lives. It is only as they begin to experience success that they begin to see what can be next. So they may start out with one objective because it is the only one they can conceive at the moment, but suddenly a whole new world is opened up because they [come to] realize, 'I can learn. I can be more than anyone thought I could be.'

The guiding principles of the careers pathways (or what are sometimes called "career ladders") approach have been described in detail elsewhere by the author and others (Grubb 1996, Jenkins 1999, Jenkins and Saganski 1999, Fitzgerald 2000, Alssid et al. forthcoming). They are summarized here as follows.

Design curriculum based on competencies needed to advance in both education and employment. At each level, career pathways programs are explicitly designed to enable students to advance to the next level of both education and training. Therefore, both employers and college faculty need to be involved in the curriculum development process.

Student performance and program outcomes in career pathways programs are assessed based on clear standards of what students should be able to do to demonstrate mastery. This helps to make transparent for students what it takes to succeed in the program and prepare for advancement to the next level. It also facilitates marketing such programs and their graduates to employers, who tend to understand standards and outcomes defined in terms of competencies rather than of "seat time" or "time on task."

The basic competencies required of entry-level jobs that lead to careers are quite similar across occupations: good work habits, strong communication, math and problem-solving skills, ability to use technology and strong motivation to learn new things (see Jenkins 1999, 2002). These are essentially the same qualities needed to succeed in post-secondary education. As a result, career pathways programs tend to follow a similar curriculum. While conventional remediation programs tend to focus narrowly on academic math, reading and sometimes writing, career pathways programs emphasize a broader set of fundamentals – communication (oral and written), applied mathematics and computer applications – that have been referred to as the "new basic skills" needed for survival in a fast-changing, knowledge economy (Murnane and Levy 1996).

Because many new community college students do not know what it takes to succeed in college, career pathways programs seek to equip them with tools for college success through instruction in study skills, test taking, time management and other college survival skills. They also help students become competent in resume writing, interviewing, conflict management and other

skills that will help the get and hold down a job. Ideally, instruction in these "soft skills" and applied academic fundamentals is integrated with the teaching of basic technical topics.

Many students come to community colleges without a clear sense of their goals for college or careers. This is particularly true of the many community college students who are the first in their families to attend college or who experienced substandard education at the primary and secondary levels. A key thrust of the career pathways approach is to make students aware of their options for college study and careers, give them a clear sense of the steps they need to take to pursue a career of interest to them, and thereby motivate them to pursue such a path. Giving students information about the possibilities is not enough. Career pathways programs seek to *expose* students to the options available to them as integral part of the curriculum so they can make choices based on their own experience.

Teach students to learn by doing through real-life problems and situations. One way that career pathways programs provide this exposure is by teaching students basic academic skills and college and workplace success skills in the context of instruction in a content field. Programs that promote contextual learning make heavy use of projects, laboratories, simulations and other experiences that enable students to learn by doing. This approach helps to engage students in learning, motivating them to work hard and learn how to learn. Integrating instruction in basic academic and soft skills with technical content drawn from college-level coursework gives students a taste of college-level work, and helps them see the value and connection of the academic fundamentals to fields of interest to them. Similarly, such programs also organize instruction around problems and situations that resemble those encountered by knowledge workers. Students thus learn to approach these situations as knowledge workers do: working in teams, making use of tools and reference materials, and with a defined project or outcome in mind. Where possible, actual workplaces are used to provide the context for learning through field trips, job shadowing and internships. Developing contextual learning programs usually involves bringing together faculty from across disciplines. In some cases, faculty members teach the courses in teams.

All of this makes learning interesting, thereby motivating students to learn and showing them that they can learn. For those who have been poorly served by the basic education system, or for immigrants who must overcome barriers of language and limited schooling, this approach engenders the confidence and resourcefulness that are critical to success in both earning a college degree and securing a career-path job.

Provide well-integrated support services to help students overcome barriers to success. Under the career pathways model, all students receive thorough assessment and counseling to ensure that they are placed in programs suited to their interests and level of readiness. Counseling of students is facilitated by career pathways "maps" that show students what they need to do to achieve their goals for education and careers, given where they are now. Ideally, the various student support services – assessment, financial aid, counseling, etc. – should be coordinated to provide the full range of support that many students need, and to identify and assist students who are struggling before they drop out. Partnerships with community organizations and social service agencies enable community colleges to offers students in career pathways programs

support services that community colleges are generally not well-equipped to provide themselves, such as child care, drug treatment, health care, family counseling, and transportation.

Some career pathways programs are designed so that students proceed through them as groups or "cohorts." This allows for peer tutoring and support and builds esprit de corps among students. Organizing programs in this way may restrict the ability of students to enter and exit freely. Still, some believe that this approach is critical to enabling disadvantaged students to succeed in a challenging educational program, and is therefore worth the tradeoff in decreased flexibility (see Jenkins 1999).

Reach out into poor communities and down into schools to recruit and prepare students. Community colleges that are effective in serving the disadvantaged generally acknowledge that it not enough to have an integrated system of programs and supports within the institution, but that they need to reach out and offer services directly in poor communities. Community college programs in storefronts, housing projects and community centers help residents overcome poor academic skills, lack of self-esteem and other barriers that prevent them from pursuing a college education.

Most young people, and particularly those from disadvantaged backgrounds, receive little guidance about post-secondary education and careers while they are in school. To help youth get on a path toward college and careers, it is imperative to reach them well before they graduate from high school. A growing number of community colleges actively work with the schools toward this end through activities such as career exposure and planning for middle and high school students, teachers and parents, articulation of high school and college curricula and other efforts.

Particularly promising are "dual high school - college credit" (aka "current enrollment") programs, in which high school students who meet college entrance requirements take college-level courses for both college and high school credit. Such programs can give students who might otherwise not even consider going to college first-hand experience with college work and the confidence that they can succeed in higher education. This can have a profoundly positive affect on students who have nowhere to turn for guidance about college and careers, in addition to giving them a head start toward a college degree before they graduate from high school. For high school students who do not qualify for college-level programs, similar experiences are possible through "tech prep" arrangements. The only difference is that students do not receive college credit, although they may be able to "place out" of basic college courses once they graduate high school and enroll in college.

Colleges benefit from working with high school students in this way because they are in effect creating a stream of well-prepared, motivated new students for the college. Colleges that serve both high school youth and adults in career pathways programs can benefit further by the increased capacity utilization and other efficiencies that come from enrolling adults in the early mornings and evenings and youth in the late mornings and afternoons.

A Case Study

To illustrate how this works in practice, the following is a case study of efforts to implement the career pathways model at the West Side Technical Institute, an arm of Richard J. Daley College. Daley College is part of the City Colleges of Chicago, one of the nation's largest community college systems with 50,000 students in college-credit programs and over 150,000 in non-credit programs. West Side Tech is located in the middle of a Latino community that is the main entry point to Chicago for immigrants from Mexico and Central America. It also on the border of Chicago's West Side, a high-poverty area with a population comprised largely of African-Americans. About 70 percent of West Side Tech students are Hispanic and 25 percent are African-American. The vast majority are poor. Many are low-wage workers seeking to move up to better jobs.

West Side Tech was established in the early 1990s as a result of a long campaign by community leaders for a facility that would offer technical training leading to well-paying jobs for local residents. West Side Tech currently offers technical training through advanced certificate programs in manufacturing, office technology, computerized computer graphics and other fields. It also offers basic-level English-as-a-Second Language instruction for the many Latino immigrants who come there to learn English.

Approximately 1,500 individuals come to West Side Tech each year seeking training to improve their job prospects. Of these, fewer than 20 percent are able to pass the basic skills placement test (West Side Tech uses the Test of Adult Basic Skills, or TABE) at a level required to enter the advanced certificate training programs (9.0, or roughly equivalent to a 9th grade level in reading and math). In response, West Side Tech several years ago began offering a refresher course to help students brush up on their basic skills in order to get a passing score on the TABE. The refresher offered four hours of instruction a week in reading and math for those who scored above 6.0 and below 9.0 on the TABE. The refresher was effective for students whose basic skills were merely "rusty." The majority of students in the refresher needed more than a refresher, however. Most were not able to pass the TABE after 10 weeks of instruction. Moreover, instructors in the college-level technical programs complained that many of those who did pass the TABE nevertheless lack the basic skills to succeed in their programs.

Many immigrants who come to West Side Tech seeking job training score below the 6th grade level in reading in math. Until now, West Side Tech admissions staff have referred these individuals to the Institute's ESL programs, which serve approximately 2,000 students per year. These programs have several limitations, however. First, the curriculum is confined to reading and math. Little attention is placed on oral and written communication, applied mathematics, computer applications and other skills useful in the job market. Classes are large and instructors typically rely on traditional academic lecture and recitation methods of teaching. Little effort is made relate basic skills to their application in the workplace, even though many of the students are working and seeking to move into better jobs.

Not surprisingly, it takes students a long time – in some cases, more than 2 years – to complete the four levels of basic ESL at West Side Tech. Students who complete the Level 4 ESL program and want to advance to higher level ESL and GED preparation have to travel 50 blocks

south to the main campus of Daley College where these programs are offered. Fewer than 10 percent of students in Daley College's GED program go on to college-level programs. The few students who have the perseverance to make it through the ESL and GED programs will have invested a great deal of time in programs that have little connection to their lives outside of school and do little to further their aspirations for education and employment. Figure 3 shows the flow of students into (and out of) West Side Tech's programs under the program structure that existed before 2001.

Beginning in 2001, under the direction of a new dean, Ricardo Estrada, and with strong support from Wayne Watson, the Chancellor of the City Colleges, West Side Tech began to address the problems described above.[4] The goal was to enable students who come to West Side Technical Institute with inadequate basic skills to advance in as short a time as possible to the college-level technical training programs while at the same time improving skills needed for job advancement. Dr. Estrada calls this "an inclusive admissions" model, since it seeks to serve students who in the past were served poorly or not at all.

Figure 4 shows the three "bridge" programs that West Side Tech developed and piloted during 2001 through this effort. These include a 140-hour Vocational ESL program for students with TABE scores between 4.0 and 5.9, a 140-hour Workplace Basics program for students testing between the 6.0 and 7.5 levels, and a 320-hour Technology Career Bridge training program for students who fall just below the minimum needed to enter the Institute's college-level technical training programs.

All three programs are designed according to the principles outlined in the last section. All focus on communication, applied math and computer applications, rather than just reading and academic math. In all three programs, these basic skills are taught in contexts that are meaningful to the lives of students outside of school. In the Vocational ESL program, students learn English in the context of learning basic life skills such as opening a bank account, applying for a driver's license, and communicating with a child's school, as well as workplace skills such as applying for a job and dealing with one's supervisor. In the Workplace Basics program, students learn the basics in the context of exploring options for careers and post-secondary education and improving customer service and other skills that will enable them to advance to better paying jobs. Students in the Technology Career Bridge program apply what they are learning in mathematics, communication, computers to the basic college-level instruction in a particular technical field. West Side Tech offers two Technology Career Bridge programs, one in manufacturing and the other in information technology. Both programs were designed with extensive input from employers as well as faculty in college-level programs in related fields. Both programs are offered in partnership with local community organizations, which help to recruit students and provide assistance with case management during training and job placement on completion.

As Figure 4 shows, over 500 students who came to West Side Tech seeking to enter a college-level training program but scored below the 9.0 minimum on the TABE were referred to one of the three bridge programs. Of these, about 300 were able to improve their basic skills enough to move into an advanced certificate program at West Side Tech during 2001.[5] More are expected to advance this year. Interviews with faculty in the advanced certificate programs indicate a high

level of satisfaction with the readiness of students who have come through the bridge programs. One instructor in manufacturing indicated that he has to spend a lot less time going over basic math with these students. He said that he wishes that all of his students could benefit from the sort of preparation that the bridge programs provide.

This year, West Side Tech is expanding the model with the addition of two other program elements, as shown in Figure 5. The first is a Life Skills ESL, which will provide instruction to ESL students at the most basic levels. The second is an Intensive GED Prep program. Designed on the model of commercial test preparation programs, the GED Prep uses diagnostic assessments to identify each student's weaknesses on the GED, and provides intensive tutoring and computer-assisted instruction to help the student master those sections of the test. Heavy emphasis is placed on honing test-taking skills, which are useful not only for the GED, but for college placement exams and employer screening tests (given by many employers offering better-paying, entry-level skilled positions). Note from Figure 5 that West Side Tech will offer the GED program concurrently with the Advanced Certificate programs. The idea is that once students have advanced to the level where they can enter and thrive in college-level programs, they will likely have not only the basic skills but also the motivation to complete the GED. In Illinois and other states, students can enter a college-level occupational program without a high school credential, but must earn a GED before they can be awarded a certificate or degree.

West Side Tech is studying what sorts of bridge programs are appropriate for different groups of students and how long it takes students who arrive with various levels of readiness to progress to college-level programs. Another focus is on program cost, since paying for these expanded programs has been a key challenge for West Side Tech. The cost to the City Colleges of the 140-hour Vocational ESL and Workplace Basics programs is around $300 per student (for each program), based on at least 200 students per year. This does not include the cost of development, faculty training and overhead, which would likely bring the real cost to over $500. The City Colleges fund these programs by offering them as non-credit programs for which they receive state reimbursement. They also charge a nominal tuition. West Side Tech is exploring the potential of using adult literacy money for these programs, although the amount available is limited – perhaps as little as $800 per full-time equivalent student (*not* per headcount), according to a knowledgeable City College administrator. Funding these programs with adult education funds would also require the colleges to use faculty from a union that represents adult education instructors. Many of these instructors do not see their job as training for careers or college. Even those who might be willing to teach in different ways would require extensive training to do so.

The cost of instruction in the 320-hour Technology Career Bridge is about $1,200 based on 80 enrollments per year, again excluding development costs and overhead. The recruitment, case management and job placement services provided by the community organizations partners cost an additional $3,500 per student. To date, the college and CBOs have paid for these costs through various grants and contracts with city and state agencies. In a policy and funding environment that favors job placement over training for advancement, finding sustainable sources of funding for this sort of program will continue to be challenging.

Despite the challenges involved, City College Chancellor Wayne Watson has been very supportive of the efforts at West Side Tech to "bridge" academically unprepared students into college-level technical programs. This is a huge problem throughout the City College system, which has over 50,000 students in adult education (ABE, ESL and GED) programs – only a fraction of whom go on to college-level programs – and which has to contend with the fact that about three-quarters of all students entering college-credit programs require remediation. By strengthening preparation of students in these adult literacy and remedial programs, the City Colleges is seeking to create a "feeder" of well-prepared students for its college-credit programs and thereby improve both enrollment and retention in college-level programs leading to degrees and well-paying jobs.

3. Barriers to Implementing Career Pathways

Despite the promise of the career pathways approach, few community colleges have actually implemented programs according to its principles. Even in these institutions, career pathways programs tend to be operated on a relatively small scale and with funding from grants or other sources of limited duration. Only a handful of institutions have sought to make the necessary changes to institute career pathways on a large scale within their institutions. This section explores why the potential of community colleges to serve as bridges to opportunity for disadvantaged students is too often unfulfilled.

Disconnects among Community College Missions and Programs

A key reason that the career pathway approach is not more prevalent among community colleges is that the model depends on coordination among faculty and curricula in remedial (including adult education), workforce and academic transfer programs. Yet, in many if not most community colleges, these different programs are operated separately with very little connection among them. Separate funding streams and differential funding for different types of programs serve to exacerbate these divisions.

Figure 6 illustrates the level of connectedness among the many types of programs in a comprehensive community colleges as well as between such programs and the labor market. The gaps between these various programs and job outcomes create barriers to advancement for community college students, causing many to become stuck or drop out entirely. Disadvantaged students are most at risk of falling through the cracks because they lack the wherewithal to negotiate an educational system that fails to provide clear guidance and support to help them advance to higher levels of education and employment. Plus, they tend to enter community colleges through developmental courses or other programs for students who lack requisite basic skills for college-level study. These "second chance" programs are too often cut off from college-level academic and workforce programs that lead to degrees and well-paying careers.

Developmental dead-end. A significant proportion of first-time community college freshmen takes at least one remedial, or "developmental," course, most often in math, before they can qualify for degree programs. Recent graduates from poor high schools and working poor adults often bring with them such extensive deficits that they are required to take a series of remedial courses in math, reading and writing before they can enter into college-level programs.

Community college developmental education programs tend to be narrowly focused on the skills needed for placement in college-level English and math – English 101 and Math 101. In fact, they are often not programs per se, but series of *courses* in the Math and English departments designed without a clear developmental framework that would help to connect students to degree programs. As such, they generally do not touch on the broader set of skills – communication, problem solving, technical math, computer applications and other applied basics – that are required for success in post-secondary occupational education and that employers generally look for in applicants for career-path positions. Most developmental programs also do not expose students to college-level offerings or to teach them how to take notes, take tests, manage their time and other skills needed for success in college. This is the case even though many students in such programs are first-generation college students and are poorly informed about their options for college-level study and about what it takes to succeed in college.

Remedial instructors generally follow the conventional academic approach to instruction emphasizing lecture and recitation, sometimes supplemented with drill and practice of basic skills using computer programs designed for that purpose. The large numbers of students who are required to take remedial courses at most community colleges encourage the mass production approach to instruction that characterizes most such programs.

In content and approach, community college remedial education resembles what many students were subjected to – and turned off by – in high school. One community college faculty member who teaches remedial math put the problem this way: "We tell students, 'This is what you didn't learn in high school, so we're going to teach it to you the same way – only three times as fast.' Then we wonder why they don't succeed." Too often, little effort is made to give remedial students a sense of their options for college-level study and to help them make the connection between what they are required to learn in remedial instruction and what they will have an opportunity to learn in college-level programs.

It is no surprise, then, that more than a quarter of community college students who are required to take remedial courses fail to complete their remedial coursework (NCES 1996: Table 6). In a study of college transcripts, Adelman (1998) found that the more remedial courses students are required to take, the less likely they are to earn a degree. Among students who attended two-year and/or four-year institutions and earned more than ten credits, for-five percent of those who took two remedial courses earned either an associate or bachelor's degree by the time they were 30, compared to 60 percent of those who took no remedial courses. Students who are required to take remedial reading in particular are more likely to need extensive remediation and less likely to earn a degree.[6]

There is strong anecdotal evidence that community college developmental programs are generally not effective in preparing students to succeed in college-level occupational programs that lead to well paying, career-path jobs in technical fields. The lack of adequate basic skills among entering students has long been a critical problem facing such programs (Burton and Celebuski 1995). This is a problem for community colleges more generally, since these programs tend to lead to jobs that not only offer high wages and promising prospects for graduates, but are often in strong demand from employers. In many cases, colleges have trouble

finding enough qualified students to enter these programs and therefore cannot meet the hiring needs of employers.

Community college developmental education has thus become a dead-end for tens of thousands of students, particularly many disadvantaged individuals who enter community colleges seeking an affordable route to higher education. This is clearly a key cause of the low degree completion rates for which community colleges are often criticized.[7]

A repeat of high school failures? In many states and localities, programs for adult basic education (ABE) and GED preparation are run by local school districts. Where this is the case, they tend to be narrowly focused helping students improve their literacy skills, measured in grade level terms, and to earn a GED. Preparation for jobs or college is generally not considered to be part of their purview. Even where such programs are operated by community colleges, they often do not look much different than similar programs by the schools. They tend to focus narrowly on basic skills using the lecture and recitation methods characteristic of high school teaching. They cling to traditional pedagogy even though many students in such programs did not succeed when they first encountered it in high school, and despite considerable evidence from the military and other domains that adults learn basic skills best when they are taught in a meaningful context such as training for employment (Sticht and Mikulecky 1995). Community college adult literacy programs are often treated as poor stepchildren compared to college-level programs. They typically rely on low-paid instructors who do not have the opportunities for professional development enjoyed by full-time faculty in college-credit programs.

While precise estimates are unavailable, it is likely that few students who enter adult education programs go on to enroll in and complete college-level programs, particularly those that lead to well-paying careers in high-demand fields.

Disconnects between Non-credit and Degree-Credit Vocational Programs. Many community colleges offer vocational training programs that do not carry credit toward a degree. These include "clock hour" vocational programs that are defined in terms of the time students spend in classroom rather than the Carnegie units that are the basis for degree credits. Because of this difference, credits from clock-hour vocational programs do not readily transfer to degree-credit occupational programs. This is the case even when the content of both programs is comparable. As with adult literacy programs, community colleges tend to treat clock-hour vocational programs as inferior to degree-credit programs. Generally such programs are taught by instructors who are paid less and have lower status than full-time, college-credit faculty.

In some states and localities, here again as with adult literacy programs, clock-hour vocational programs for adults are offered by local school districts. Unless there is a strong relationship between the schools and the local community college, graduates from school-based programs are unlikely to have an easy time applying their credits to community college degree programs.

Many community colleges also offer extensive "workplace literacy" programs designed to improve the literacy skills of incumbent workers. Such training is often offered by community college "business and industry" divisions, which provide training under contract to employers.

These divisions often operate separately from the main academic divisions of the college, and so may not encourage students to pursue further formal degree training with the college.

Many community colleges have seen the rapid growth of non-credit occupational training separate from college-credit occupational programs. These non-credit offerings are sometimes referred to as "the shadow college." Unfettered by credit hour requirements, faculty committees and other constraints of degree credit programs, non-credit programs are often able to be more responsive to the needs of job-oriented students and employers. In many community colleges, the closest connections to employers and jobs are forged through the "business and industry" units just mentioned. These units often operate as profit centers independent of the college-credit divisions, and generally rely on adjunct instructors, despite the potential benefits to college-credit programs of involving full-time faculty in direct training for industry.

The proliferation of non-credit occupational programs at community colleges is a good thing to the extent that they are responsive to the needs of students and employers. Yet, the lion's share of public support for community colleges flows to the credit programs. And at most colleges, the power and prestige reside with the full-time college credit faculty. Moreover, most disadvantaged students are served through credit programs, or at least through remedial and adult literacy programs, which share a similar orientation and approach to teaching.

In general, community colleges tend not to look upon programs that do not carry degree credit as potential feeders for degree programs. This is the case even when many students in adult literacy programs and non-credit vocational training programs would likely be interested in pursuing degree-credit occupational education if they could meet the basic skills requirements. It is surprising how, when community colleges have a hard time recruiting students to fill degree-credit occupational programs, they may not look to students already enrolled in the institution in remedial and non-credit programs as potential recruits.

Academic – vocational divide. Even at the college-credit level, college transfer and occupational programs in many community colleges operate under separate divisions, with little exchange, and sometimes more than a little suspicion between the two. College transfer faculty generally see their role as providing the first two years of general education toward a bachelor's degree. They typically do not consider preparing students for employment directly upon graduation as their responsibility. This is so despite the fact that most community college students are employed at least part-time and are seeking both to advance to better jobs and earn a college degree. As a result, faculty in academic transfer programs generally have little connection to employers and are often not well-informed about the learning requirements of employment outside of education.

In contrast, community college degree programs in occupational fields often put a greater priority on preparing students for employment than on degree preparation. Where effective, such programs have strong ties to employers and jobs in the fields for which they train. Instruction tends to be applied in nature and competency-based, with clear standards of what students should be able to do defined in terms of the learning demands of employment. Because the academic divisions take such a different approach to teaching, occupational programs sometimes have to teach their own courses in basic areas such as mathematics and science. While this may be a

better way to prepare students for employment, it can hamper their efforts to earn degrees, since many baccalaureate programs are reluctant to accept transfer credit for community college courses in applied technology fields. This is so, even when there are statewide articulation agreements in place to facilitate transfer of such credits. In many areas, options for bachelor's degree study in applied technology fields are limited.

As a result, students are often forced to choose between a track leading to degrees and another leading to employment. In general, separating academic education from occupational training ignores the fact that most community colleges students are seeking both to advance in their careers and earn a college degree. Academic programs focused primarily on baccalaureate transfer fail to address students' needs for employment and aspirations for careers. Similarly, occupational programs that do not provide credit that can be applied toward a bachelor's degree often limit students' long-term prospects for advancement.

Second-class status of "pre-college" programs. Traditionally the power and prestige within many community colleges (particularly those built on a junior college mission) reside among the academic, baccalaureate transfer programs and faculty. In recent years, community college programs in information technology and other high tech fields, both credit and non-credit, have grown in stature as their enrollments have skyrocketed. While they may not be widely understood or appreciated within the college generally, contract training programs tend to be looked upon favorably by community college presidents, since they often provide a source of income for the college in addition to serving the needs of local employers.

None of these three prestige divisions within community colleges has as its primary mission promoting advancement of disadvantaged students. College-credit faculty tend to see their role as teaching *college-level* subject matter and, as such, are sometimes resentful of having to deal with students who are not prepared for college. Even so, it is not uncommon for community college English and math faculty to spend a majority of their time teaching developmental classes. Faculty in technology programs are often frustrated by the amount of time they have to spend helping students with limited basic skills at the expense of instruction in advanced topics (Grubb et al. 1999). Many community college contract training programs also serve substantial numbers of individuals with poor basic skills through workplace literacy training. Yet, as indicated above, these programs often do not connect the students they serve with the degree programs of the college.

Inadequate Resources

Teaching disadvantaged students well is expensive. Community colleges tend to be funded primarily based on the number of enrollments they generate. While, in some states, enrollment funding may be designed to account for the cost of the program, it rarely accounts for the profile of students being served. Teaching students who are academically unprepared for college-level study obviously costs more than teaching students who are prepared.

Based on a 50-state survey of state funding of community colleges, the Education Commission of the States (ECS) found that college remedial programs are funded at a level less than that of college-credit courses in Georgia, Illinois and several other states (ECS 2000). ECS also found

that at least 10 states either provide no funding for adult basic education at community colleges, or fund such programs at a level below that of college-credit programs.

Because remedial education is poorly funded, colleges are typically forced to pack developmental students into large classrooms with little individual attention and support. Projects, laboratories and other teaching methods effective in engaging students are not feasible in programs supported by expenditure-driven funding formulas. To provide the sort of the sort of contextual, integrated instruction that research shows is effective with academically unprepared adults, community colleges have to find additional sources of funding.

Finding sustainable sources of to support career pathways programs on significant scale within community colleges scale is a challenge, especially in an environment where prevailing welfare and job training policies emphasize "work first"—immediate placement in any job– rather than job retention and advancement. Partnering with community organizations and social service agencies to take advantage of their resources for case management and support is one way to defray the costs of such programs. Yet, partnering with outside groups is never easy and not always feasible. And, as indicated in the case study of West Side Technical Institute in Chicago, funding the role of outside partners may also be a challenge.

Limited support for program and faculty development. Community colleges are generally funded to teach. Most receive little funding to free up faculty to develop explore new ways of teaching and develop new programs to meet the needs of students. Indeed, the meager funding that most community colleges do receive forces them to get as much productivity as they can from instructors. Community college faculty typically have much higher teaching loads than their university counterparts and generally have little time to develop new programs. Because most community college budgets are tied up in salaries, community college leaders generally have little discretionary money. They usually have to rely on grant funding for new program development. Yet, it is often hard to sustain grant-funded programs once the funding ends. Convening faculty to design curriculum and team-teach courses is expensive, and requires creative financing to support. This is very difficult in an environment where, due to fiscal constraints, colleges increasingly rely on less-expensive adjunct instructors, who typically do not have the time or the expertise of full-time faculty to work together on curriculum development, experiment with new approaches to teaching, and build the connections among courses and programs that are essential to facilitating student advancement.

Limited Support for Student Services. Disadvantaged students need more support and attention than do other students, and this support is expensive. Where community colleges do receive direct support for student support services, it is typically on a full-time equivalent (FTE) enrollment basis, even though most community college students attend part time. Three part-time students generally require three times as many support services as one full-time student. As a result, staff in student support functions tend to be poorly paid. Caseloads for such staff are typically high. Often their role is reduced to carrying out administrative functions rather than providing a broader range of counseling and support. Faculty generally see their role in advising as confined to academic issues.

Students in adult literacy and other non-credit programs often do not receive the same level of counseling, tutoring and other support services as students in for-credit programs. Here again, the reason is that community colleges are funded to teach these students, not provide the broader range of support they often need to succeed.

Insufficient Financial Aid for Working Students. Most community college students work at least part-time. Many work full-time in addition to attending school and caring for their families. Many working adult students barely make enough to sustain themselves or their families, but nevertheless do not qualify for federal financial aid, which tends to be designed for full-time students. Many states do not offer financial aid for students who attend part-time. This is a problem for disadvantaged students, most of whom *must* work just to make ends meet. Few states provide financial aid for students in adult literacy or other non-credit programs.

Policy Disincentives

A key cause of the disconnects in community college practice is that the public policies under which they operate and are funded are often out of touch with what community colleges do and the students they serve. Policy makers too often assume that community college students are like the traditional four-year college student, who is 18-21 years of age and attends college full-time. As a result, public policies tend to be designed with unrealistic expectations about what it takes to serve students effectively.

Higher education policy generally favors four-year institutions. For example, transfer policies often place a greater burden for success of baccalaureate transfer programs on community colleges than on four-year colleges and universities. In most states, community colleges receive proportionately less funding than do the four-years. This is due to a combination of factors, including the formidable political power of four-year institutions and the fact that the American public tends to think of a "college education" in terms of the four-year baccalaureate. Related to this is the fact that community colleges, unlike universities and K-12 systems, typically lack strong coalitions of support from the business community and other outside groups.

Compared to four-year institutions, community colleges are often better positioned to improve access to higher education for the disadvantaged and meet the workforce needs of local employers – and to do both at a lower cost. Despite this, the work of community colleges is surprisingly not well understood or acknowledged by policy makers, including and especially those at the state and local levels, where community college policy is by and large made. Like the general public, many policy makers think of community colleges in terms of their traditional function as "junior colleges." They are often not well informed about the potential of community colleges to prepare disadvantaged students for college-level work or their role in workforce development.

For example, in recent years, Texas, Florida and other states have enacted "x percent policies," which guarantee a given percentage of students at the top of their high school graduating classes a place in state universities. These policies are intended to increase representation of minority students in higher education as a substitute for affirmative action. They have generally been designed without much thought given to the role of community colleges, even though most

universities are unaccustomed to enrolling large numbers of disadvantaged students and usually unprepared to provide the extensive support services such students need to succeed. In other cases, policy makers in New York City, Massachusetts, California and elsewhere have sought to "off-load" remedial education from four-year institutions to community colleges without giving community colleges sufficient resources to take on the added burden.

Community colleges that have succeeded in reconciling their multiple missions to expand educational and career opportunities for disadvantaged students have often done so *in spite of* prevailing public policies. To provide needed services to such students and their communities, these colleges continually scramble to piece together funding from whatever sources they can find. Complying with the requirements of funding from multiple streams can make it difficult to provide a holistic set of services that many disadvantaged students need. Moreover, such support is typically outside of their general funds and usually of limited duration.

Community college presidents spend an increasing amount of their time reaching out to constituencies outside the college. Many presidents are involved in bodies concerned with local economic development. Among such outside groups, the main interests tend to lie in serving the needs of employers. Even amid the tight labor markets of recent years, many employers were reluctant to consider hiring disadvantaged workers to fill openings for jobs in demand.

It is not surprising then that, when talking to outside audiences, community college presidents are more likely to highlight their new high tech training center or their nursing program than their programs for disadvantaged students. This is so even if, as is often the case, disadvantaged students comprise the largest share of their enrollments.

In general, working poor adults lack a strong lack a strong political voice. Community colleges, which are the institutions best positioned to serve the working poor, are themselves generally not politically powerful. Unlike the public schools, community colleges are often not well understood or appreciated by the public for their role. Unlike public four-year institutions, community colleges tend to lack strong political influence with policy makers. So advocating for efforts to help working poor families advance beyond poverty is difficult, even when there are compelling social and economic reasons to do so.

Because of these factors, it is often less expensive – and less risky – for colleges to invest their limited development dollars in programs for students who come prepared for college-level work than to help disadvantaged students overcome the many barriers they face to success in college.

The case of Florida's Performance Funding System[8]

In 1997, the Florida Legislature instituted a new incarnation of its efforts, begun in 1994, to fund workforce education in the state based on performance. Under the new scheme, 15 percent of the funds designated for community college and school district workforce development programs are allocated based on a formula that awards points for positive program outcomes. The remaining 85 percent of the funding is based on the prior year's funding level. This "performance-based funding" system replaced the "performance-based incentive funding" (PBIF) scheme under which the legislature had provided a modest amount of funds above and

beyond base budgets. Under the new system, colleges are now required to "recover" 15 percent of their base budget funding. There are no longer additional funds to give colleges positive incentives to improve their performance.

Colleges and schools earn points when students complete training aimed at high-wage, high demand jobs and when they are placed in such jobs. They earn extra points when the students who complete such training and are placed in high-wage jobs are members of "target populations" that include welfare recipients and other low-income individuals, displaced workers, and the disabled. Since 1997 when the law was enacted, the points for job placement have been abandoned and the points for target populations have changed. Colleges and schools can still earn substantially more points by enrolling and graduating students from the target populations in programs leading to high-wage jobs.

This funding scheme might seem to provide an incentive for community colleges in Florida not only to emphasize programs leading to high-wage jobs, but to take steps to prepare students in the targeted groups to enter and succeed in such programs. The law has clearly accomplished the former. A recent report on the impact of the 1997 law by the Florida Legislature's Office of Program Policy Analysis and Government Accountability found that actions taken since 1998-99 have reduced the number of programs with low completions, increased the number of programs with higher average entry-level wages, and increased the number of programs with higher proportion of completers employed (OPPAGA 2001). One college administrator put the effect of the current scheme bluntly: "If our program is less than 80% high-wage, high skill, then we are in a spiraling loop – we're going to crash and burn."

At the same time, the new scheme does not seem to have had the effect of encouraging community colleges in Florida on a large scale to bridge disadvantaged students into training programs for high-wage jobs. According to an official at the Florida Department of Education, targeted disadvantaged populations account for less than 10 percent of all points generated in the performance-based funding system while "regular Joes" generate over 80 points. The emphasis on programs leading to high-skill, high-wage jobs may be squeezing out programs that serve students with lower levels of skill. For example, colleges complain that they are having a hard time justifying continuing programs such as CNA, Home Health Care Aid and Child Care Specialist, despite strong demand for such programs, because they do not lead to high-wage jobs.

When asked why this funding formula has not led to more colleges to seek to advance students in targeted populations into high-wage programs and jobs, the consistent answer from community college officials is, given the tenuous nature of the funding available, the risks of a career pathways strategy are too great.

Much of this is due to the vagaries of a funding scheme that does not provide additional incentive funding but rather forces colleges to compete for a significant portion of their base budgets. The 15 percent of base budgets that colleges have to recover by earning performance points amounts to about $47 million out of a total $313 million state-wide budget for community college workforce programs (OPPAGA 2001: 70). The number of points a college earns merely determines how a college ranks at the end of the year compared to other colleges. This has the perverse effect that a college could improve its performance over the previous year, but, because

other colleges scored more points, could ending up losing money. And, because the current year's performance determines the level of funding for next year's 85 percent base, it can take several years for a college to recover from one bad year – in effect making the funding scheme a zero sum game for Florida's community colleges collectively.

The weights and point values are not determined until the end of the year and fluctuate from year to year, so it difficult for colleges to predict revenues or plan new programs. No additional funding is available to start new programs. Finally, because colleges have to keep track of a complicated array of program completion points, the scheme has significantly increased the paperwork burden on colleges, adding to their costs. In the past five years, the Legislature has given the community colleges only $17 million of new money for workforce development, which amounts to less than half a percent a year. In response to the economic downturn, the Legislature this past fall cut over $50 million from the community college budget, most of it from workforce programs.

At one college, staff members involved in adult literacy programs argued that the extent of remediation most low-wage students need to enter training for high-skill technology jobs is overwhelming both for the institution, but also for the student. When students see what they will have to go through to get into the high-wage training programs, many become discouraged not just because of the time it would take, but "because they did not do well in high school and these remedial programs seem a lot like high school." When asked why the college did not try to change the programs using the principles of career pathways approach, the response was that the funding available to this institution to serve over 12,000 students per year in adult literacy programs amounts to $1,100 per full-time equivalent. This is barely enough to cover the cost of instruction. Florida law prevents community colleges from charging fees for adult education programs. So if a college wants funding to develop new programs or train instructors it has to raise it through grants. This particular college had submitted a proposal to the U.S. Department of Education to establish an "adult tech prep high school" that would enable them to develop programs and build capacity according to career-pathways principles, but was still waiting to hear the outcome as of January 2002.

So the main incentive by which community colleges operate and are paid under the Florida workforce education system – completion in programs leading to high-wage, high skill jobs – together with limited funds for program development, discourages colleges from focusing resources on efforts to advance disadvantaged students.

4. Incentives for Change

Creating coherent pathways for students to college and careers requires fundamental changes in the way most community colleges do business. It requires that there be real consensus throughout the institution about the mission and goals of the college. It means that faculty must work together with one another not only across disciplines, but across divisions – academic transfer, occupational and developmental – to experiment with different approaches to teaching and learning. And it requires extensive assessment, monitoring and support of students to ensure that they stay on track.

Bringing about wholesale organizational change requires strong leadership with a vision that inspires people to do things differently. Obviously, it also requires money, both in new resources to support planning and experimentation and a reallocation of existing funds to activities that promote shared goals.

Norton Grubb argues that, unlike K-12 education, community colleges do not face strong pressures for reform from policy makers or employers (2001b: 301-2). Unlike federal welfare and job training programs, there is no central funding agency responsible for improving program outcomes among community colleges.

While this may be true, and while in many states the resources to support change may be limited, most community colleges face a similar set of challenges that would seem to provide strong incentives to make serving disadvantaged students and promoting their advancement a high priority.

Disadvantaged students are the main market for many, if not most, community colleges. Forty percent of first-time community college students require at least some remediation. At colleges in cities and rural areas, the proportion is much higher. About half of community college students are the first in their families to attend college. Eighty percent work at least part-time, about half work part-time. Many students come to community colleges with substandard educations. Nearly half are 25 or older, meaning that many will have been out of school for a long time. So a sizable proportion of community college students face at least some barriers to success in colleges. Many colleges have little choice but to try to serve disadvantaged students because such students often constitute the majority of their students.

Increasing calls for accountability. Given the large numbers of students who enter community colleges unprepared for college-level work, it is not surprising that many do not complete their programs. At the same time, policy makers are increasingly looking for ways to hold higher education institutions accountable for student outcomes. Several states have experimented with performance funding of colleges to varying extents and with varying degrees of success.

The North Central Association and other accreditation bodies have recently instituted standards calling on colleges and universities to document evidence of improved learning over time for all students. These new standards are causing colleges to examine why some students do not succeed and what can be done to ensure that others do. Among community colleges in particular, this process of self-examination is likely to lead to questions about the efficacy of remedial programs.

Demand from employers for skilled workers. Employers that have invested in new technologies and work systems need broadly skilled technicians. During the tight labor markets of the late 1990s, demand for such workers was so great that there was strong incentive to reach down into the ranks of the unemployed and under-employed in order to meet labor market demand. Even in the current downturn, sectors such as health care and construction continue to face shortages of skilled workers. Every indication is that demand for skilled workers will again increase as the economy recovers. Skilled jobs in health care, manufacturing and other fields associated with traditional blue or pink college jobs also carry certain stigmas for many middle class Americans.

So it makes sense to recruit for jobs in these fields among immigrants and disadvantaged individuals for whom any stigma is outweighed by the wages they offer.

Especially during the tight labor markets of recent years, community colleges faced problems filling classes in programs for which there was a strong demand for graduates. Now, even though many people are returning to education during the current downturn, community colleges continue to have trouble recruiting students who have the qualifications to succeed in post-secondary technical education leading to well paying, high-demand careers. At the same time, they enroll thousands of students who are seeking education to advance themselves economically, and who, with the appropriate guidance and support, could move into college-level programs in high-demand fields.

Competition. Recent years have seen the rise of regionally accredited, for-profit institutions focused on providing education toward degrees in career fields. What is interesting about these institutions from the perspective of this paper is not just that they produce graduates whom employers rave about, but that many of their students and graduates are minorities and others whom community colleges and other higher education institutions have generally not had a strong track record serving. According to a recent CCRC study that compares one of these for-profit colleges with nearby community colleges (Bailey et al. 2001), blacks and Hispanics account for a higher share of enrollments in degree-granting for-profit institutions than they do in public and private non-profit institutions. For-profit institutions also graduate proportionally more minorities than do their non-profit counterparts. In general, degree completion rates are higher among students at for-profit, degree-granting institutions than among community colleges and other public higher education institutions.

Not only do such institutions graduate proportionally more minority graduates, but many of their students are earning degrees in technology fields that command high salaries and for which there is usually strong demand from employers. Based on analysis of data from the Illinois Board of Higher Education, the author found that three private, *four-year* institutions – DeVry Institutes, ITT Technical Institutes and Robert Morris College – turn out more black and Hispanic associate degree graduates in computer fields than all of the community colleges in the state of Illinois combined (Jenkins 2002). In FY 2000, the two Chicago-area campuses of DeVry Institutes produced more than twice as many Hispanic bachelor's degree graduates in IT, and three times as many black bachelor's degree graduates, than did the next highest producers.

Referring to proprietary colleges, Tony Zeiss, president of Central Piedmont Community College in North Carolina, alarmed community college educators with an article in the *Community College Journal* titled, "Will Our Students Become Theirs?" The CCRC study just mentioned suggests that, because overall enrollment in for-profit higher education institutions is relatively low and likely to remain so, community colleges need not fear losing significant market share to the for-profits (Bailey et al. 2001). At the same time, the study suggests that community colleges and other public higher education institutions have much to learn from the for-profits. From the perspective of this analysis, it seems that community colleges might learn from the effectiveness of for-profit colleges in preparing minority and other disadvantaged students to earn degrees and prepare for employment in high-demand, technical fields. The question community colleges

should be asking is not "Will our students become theirs?" but "Why are they effective with students we have had difficulty serving (and at far greater cost to the student)?"

All of these developments point to the need for community colleges to find better ways to support success by disadvantaged students. Proponents of the career pathways approach claim that it provides a framework for rethinking community colleges programs in ways that do just that. There are a number of lingering questions, however, both for career pathways proponents and community college educators more generally. These are the topic of the last section.

5. Unanswered Questions (A Proposed Research Agenda for CCRC)

Efforts to construct community college career pathways still leave a number of questions unanswered. Together, these questions constitute a research agenda that the Community College Research Center might consider pursuing.

How effective are career pathways programs and what are their limitations?

The career pathways model needs to be rigorously evaluated. No such program has been evaluated using random assignment of subjects, for example. Most programs record outcomes immediately following completion. Few track the progress of graduates for significant time periods beyond that.[9] Many programs that are called "career pathways" or "career ladders" actually focus on advancing students only one step on the pathway (or rung on the ladder). Most often this is the juncture between the semi-skilled jobs and entry-level skilled jobs shown in Figure 1. How long does it take for individuals starting at lower levels of readiness to progress to higher levels? How common is such progression? What are the barriers to advancement?

Relatively few students in associate of applied science degree programs end up earning an associate degree. Even fewer go on to earn a bachelor's degree. To the extent that career pathways initiatives direct disadvantaged students into applied technology programs, they may be limiting their opportunity to earn a college degree, especially when the community college degree credits cannot readily be applied to a baccalaureate degree in a related field. Is this the optimal path for disadvantaged individuals? Or would they be better off pursuing a more traditional academic academic? These questions have not been addressed.

Many career pathways programs require participants to have an 8th grade level of reading and math based on common adult literacy tests such as the TABE. This is the case even though the majority of potential students in low-income communities are likely to fall below this level. A few initiatives, like the one in the City Colleges of Chicago profiled earlier, have tried to work with students who have lower levels of literacy. Many individuals come to community colleges lacking even the basic skills for these sorts of programs. They include immigrants with very limited facility in English, who may not be literate in their native language. They also include native-born Americans who have difficulty reading even simple texts. Many of these individuals suffer from learning disabilities. Research shows that adults with very limited reading skills are very unlikely to enter and succeed in college-level education and training (Adelman 1998). What is the best approach to serving students with severe basic skills deficiencies?

Even where career pathways efforts are clearly effective in advancing students, not enough attention is paid to their costs. Still unanswered is the question of how can career pathways be sustained on a significant scale in poorly funded institutions like community colleges.

What are the costs and benefits to community colleges of reforming developmental education according to the principles of the career pathways model?

Probably the best opportunity for institutionalizing the career pathways approach on a significant scale in most community colleges would be to use the model to reform developmental education. All community colleges offer developmental courses (NCES 1996). Most disadvantaged students who seek to enter community college college-credit programs first have to take at least one, and usually more, developmental courses. More than a quarter of community college students who are required to take developmental courses fail to complete their remedial coursework (NCES1996). Fewer than half of those who take two or more courses end up earning a degree of any kind (Adelman 1998).

Despite evidence that improving developmental education could improve outcomes for students, most community colleges continue to teach developmental courses in the conventional way. In a study of community college remediation by Robert McCabe, former president of Miami-Dade Community College, only six of 25 colleges reported having revised their remedial programs significantly in the past 10 years (McCabe 2000). Most career pathways programs are run as non-credit or adult education programs, not as college remedial programs. This is the case even though, unlike adult education or other non-credit programs, developmental education courses tend to be funded at a level similar to that of college-credit courses and developmental students are eligible to receive financial aid and have access to student support services available to students in college-credit programs.

Despite their prevalence among community colleges, surprising little is known about developmental education programs and about what makes some more successful than others. In a recent CCRC research brief, Norton Grubb criticizes what he points out is a relatively limited body of evaluations of remediation programs, arguing that they tend to treat remedial education as a "black box" and fail to acknowledge the great variety in practice (Grubb 2001a). Grubb maintains that any effort to evaluate the outcomes of remedial programs and provide guidance on how to improve their effectiveness needs to be clear about the settings in which the programs being studied take place and the teaching methods used in each case.

Research is needed on this and the following other questions regarding community college remedial education:

- What are common models by which community college remediation is taught? What is the rationale for each model?

- What approaches to program design and pedagogy are effective for different populations of students? Are methods that are effective for disadvantaged native English speakers also effective for poorly educated ESL students?

- What are common ways that community colleges organize and administer remedial programs?

- What is the impact of different approaches to organizing remedial education on students' preparation for college? What organizational models are effective in strengthening the connection between remedial education and college-level programs?

- How do community colleges finance remedial education? What are the implications of different funding methods for the quality of teaching and program effectiveness?

When asked why career pathways models are not more prevalent among community colleges, many community college professionals will argue that, given limited resources, it is much less risky to focus on more advantaged students. Some argue that the fact that the high school graduating classes are expected to reach record levels over the next several years will mean that most colleges will have sufficient numbers of applicants to meet their enrollment goals and will not have to make the extra effort to bring in disadvantaged students. In the current recession, many community colleges have been swamped by students returning to school in hopes of preparing for better jobs when the economy recovers. This comes at a time when funding for public higher education generally is threatened by state and local budget cuts.

While it is unquestionably costly to serve disadvantaged students, not serving them effectively also carries costs for community colleges. Students who fail to move beyond developmental courses to college-level programs represent lost revenue for their college. Many of these students receive financial aid or take out loans to finance their education. There are also harder to measure, but no less onerous costs. These include dashed expectations of students who are unable to pursue their dreams for college and the perception of community colleges as "revolving door" institutions.

What are the costs to community colleges maintaining the status quo with respect to developmental education? Would the benefits of creating more effective community college remedial programs outweigh the costs? These questions need to be addressed.

<u>What can community colleges learn from degree-granting for-profit career colleges (and others on the same model) on how to serve disadvantaged students more effectively?</u>

Many of the degree-granting for-profit career colleges also offer extensive remedial programs for their students. What can community colleges learn from these institutions? Specifically, why do for-profit colleges seem more effective on average in serving minority and other disadvantaged students than public two- and four-year institutions? What can community colleges learn from these institutions on how to serve disadvantaged students more effectively?

<u>What sorts of public policies would encourage community colleges to help disadvantaged students to advance to higher levels of education and employment on a wide scale?</u>

Community colleges in Florida clearly responded to the incentives created by the 1997 law to change the mix of occupational programs to emphasize those leading to employment in high-

wage, high-demand fields. However the incentives provided to encourage colleges to move disadvantaged students into high-demand programs are apparently not sufficient to convince colleges to do so. The Florida experiment with performance funding leaves unanswered the question of what it would take to persuade colleges to promote advancement by disadvantaged students on a wide scale. What can we learn from policy initiatives in others in other states?

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Figure 1. Digital Job Divide

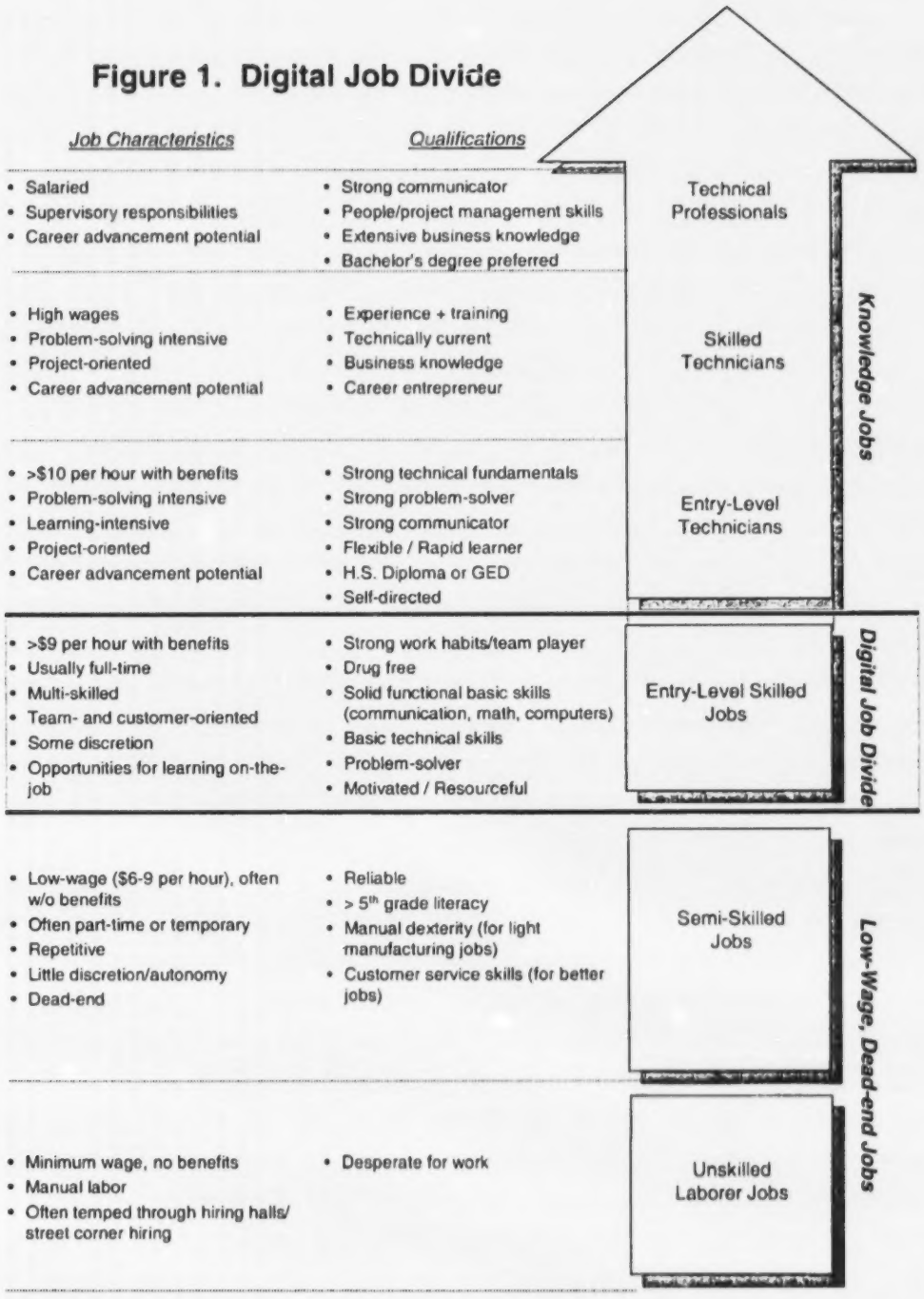


Table 1. Digital Job Divide: Sample Jobs and Wages

Job Level	Sample Job Titles	Salaries/Wages*	Source
Technical Professionals	Mechanical Engineer	$57,000	B
	Software Designer	$62,000	B
	Manufacturing Engineer	$52,000	B
	Accountant	$47,600	C
	Financial Analyst	$56,600	C
	Radiation Therapist	$41,600	A
	Registered Nurse	$36,400	A
Skilled Technicians	Computer Programmer	$49,000	B
	CAD Designer	$36,000	B
	CNC Machinist	$18.69	C
	Industrial Maintenance Tech	$17.60	C
	Industrial Electrician	$20.99	C
	Tool and Die Maker	$22.39	C
	Medical Lab Technician	$14.94	A
	Radiology Technician	$14.49	A
Entry-level Technicians	Field Service Technician	$34,000	B
	CAD Operator	$30,000	B
	Emergency Medical Tech	$10.40	A
	Licensed Practical Nurse	$12.38	A
	Medical Secretary	$10.30	A
Entry-level Skilled Jobs	Help Desk (Level 1)	$26,000	B
	Software Tester	$27,000	B
	Machine Operator (set-up)	$12.50	C
	QC Inspector (in-process)	$11.88	C
	Shipping and Receiving Clerk	$11.70	C
	EKG Technician	$8.45	A
	Medical Assistant	$9.82	A
	Medical Billing Clerk	$9.94	A
	Bank Teller	$9.45	A
Semi-skilled Jobs	Assembler (semi-skilled)	$9.08	C
	Forklift Driver	$8.50	C
	Machine Operator (semi-skilled)	$8.73	C
	Certified Nursing Assistant	$7.52	A
	Home Health Aide	$9.05	A
	Medical Orderlies/Attendants	$7.52	A
Unskilled Laborer Jobs	Personal Care Aid	$6.82	A
	Laborer (full-time)	$7.03	A
	Laborer (temporary)	minimum wage	

Sources for salaries and wages:

A – Illinois Department of Employment Security, 1999 Wage Data, Cook County. (median wages)

B – American Electronics Association (AeA), *2001 Benchmark Compensation Survey.* Louisville, KY: William M. Mercer, Inc., 2001. (mean wages)

C – Crain's Chicago Business, "2001 Wage and Salary Survey." (mean wages)

Figure 2. Community College Career Pathways

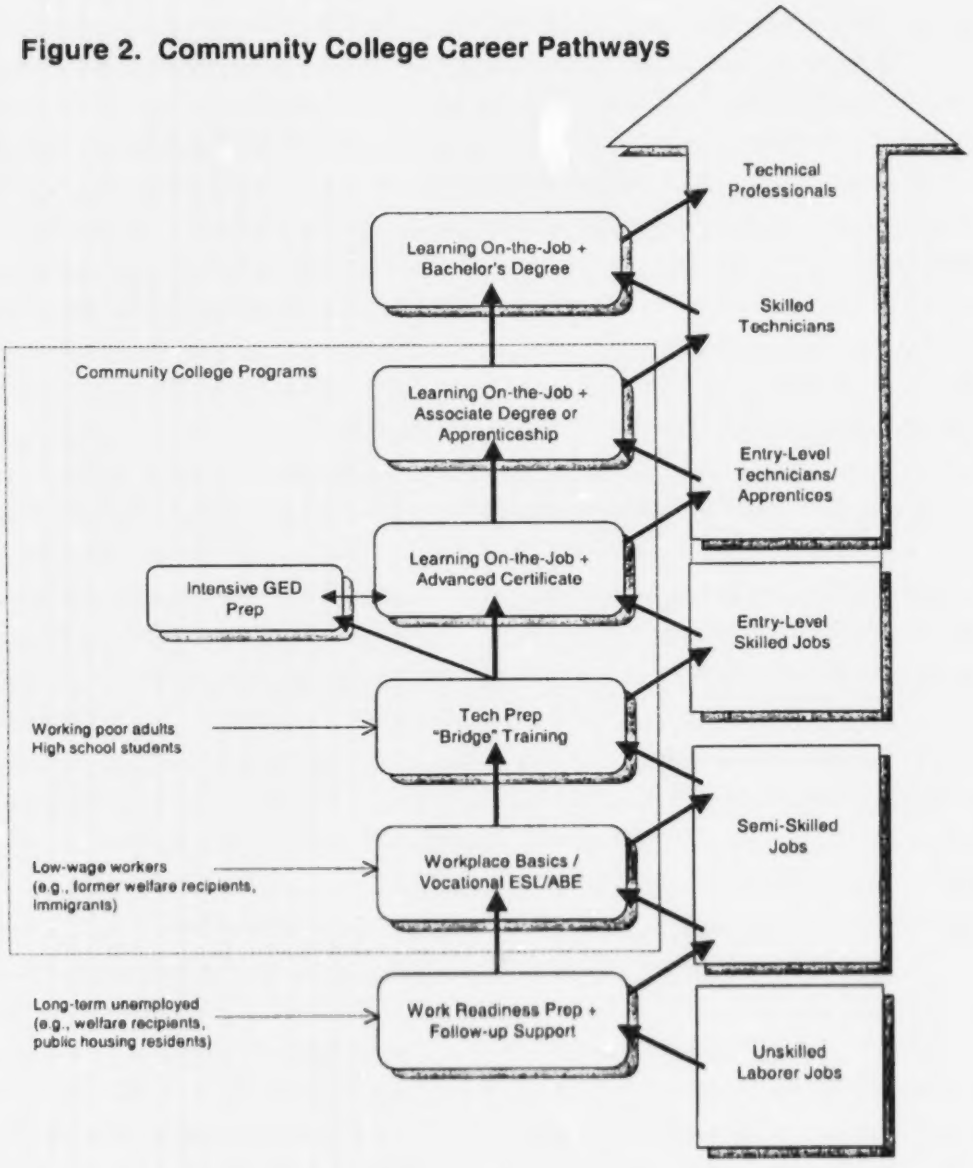


Table 2. Community College Career Pathways: Program Features

Program Level	Minimum Requirements	Content / Features
Associate of Science	• Pass college placement exams • ≥ 10 grade reading + math • H.S. diploma or GED	• Technology fundamentals • Project learning • Career exposure/planning • Internships/coop ed.
Advanced Certificate	• Pass college entrance exams • ≥ 9th grade reading + math	• Applied technical fundamentals • Project learning • Industry exposure/career planning • Career success skills
College/Career Success	• For all college-credit students, including and especially developmental students	• Study, test taking and time mgmt. skills • Resume writing, interviewing, employability skills • College/career orientation and planning
Intensive GED	• ≥ 8th grade reading + math	• Assessment to target weaknesses • Intensive tutoring and CAI focused on weaknesses • GED writing skills • Test-taking strategies
Tech Prep Bridge (Adult or Youth)	• ≥ 8th grade reading + math • Some work history • Strong motivation • Drug free	• Applied communication + math + problem-solving + computers • Technical fundamentals (by sector) • Career/college exploration/planning • Career/college success skills • Computer-assisted basic skills instr.
Workplace Basics 2 (Vocational ESL/ABE 2)	• 6th-8th grade reading + math	• Applied basics: communication + math + problem-solving (Level 2) • Computer applications • Career/college exploration • Computer-assisted basic skills instr.
Workplace Basics 1 (Vocational ESL/ABE 1)	• 4-6 TABE reading + math	• Applied basics: communications + math + problem-solving (Level 1) • Intro to computers • Customer service skills • Job success strategies • Computer-assisted basic skills instr.

Figure 3. City Colleges of Chicago West Side Technical Institute Student Flow Before 2001

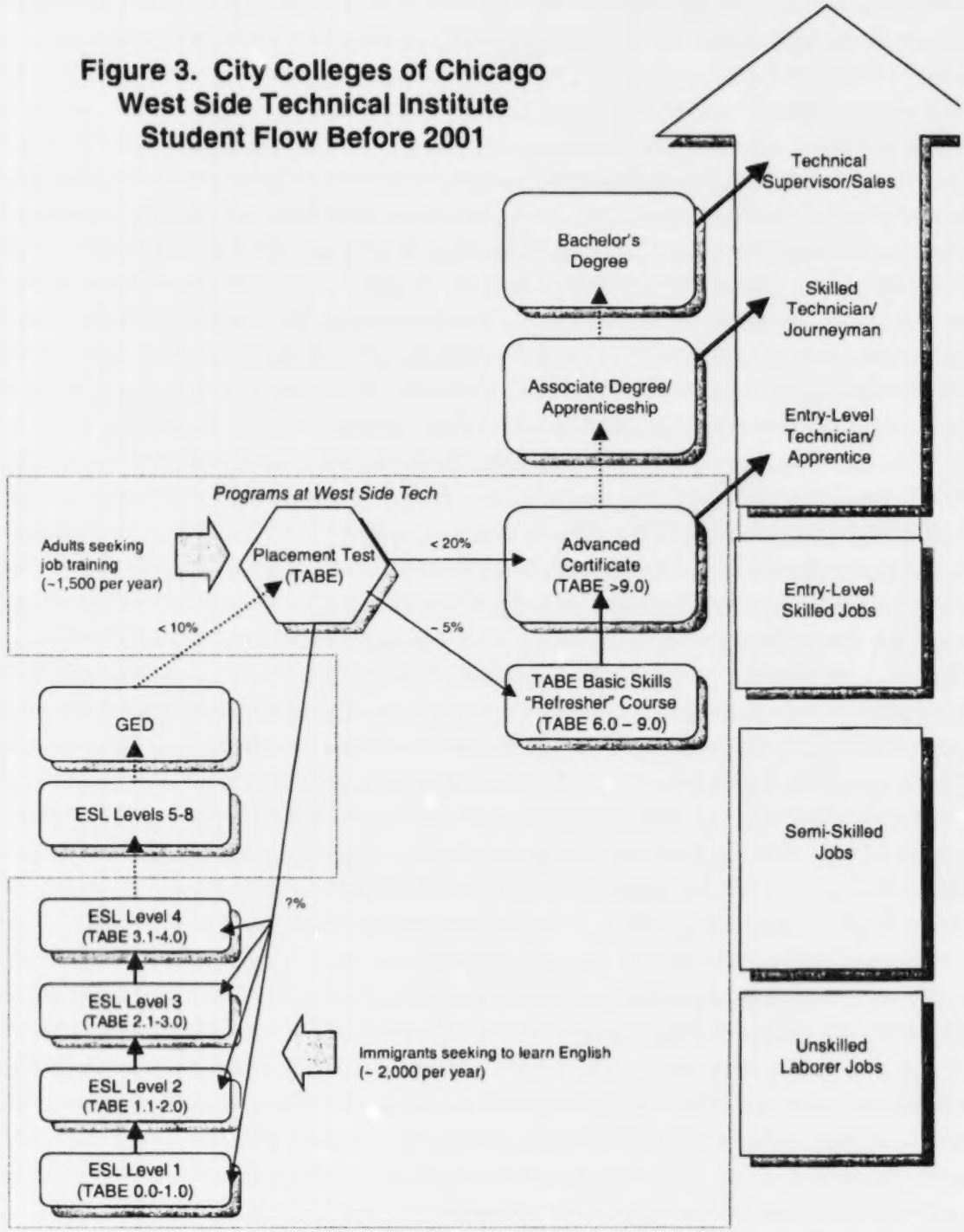


Figure 4. City Colleges of Chicago West Side Technical Institute Pilot of Career Pathways Model 2001

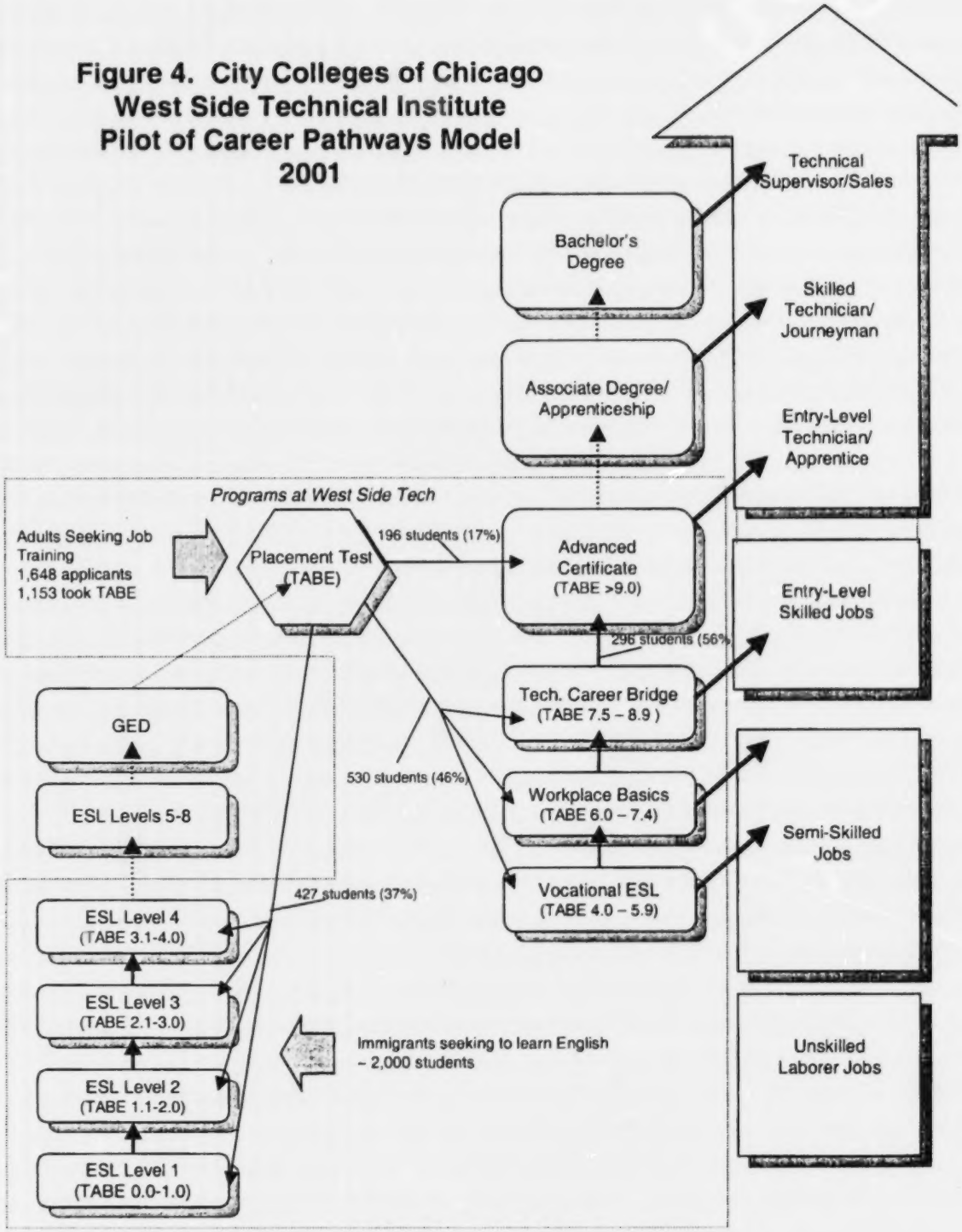


Figure 5. City Colleges of Chicago
West Side Technical Institute
Further Integration of Career Pathways Model
Under Development in 2002

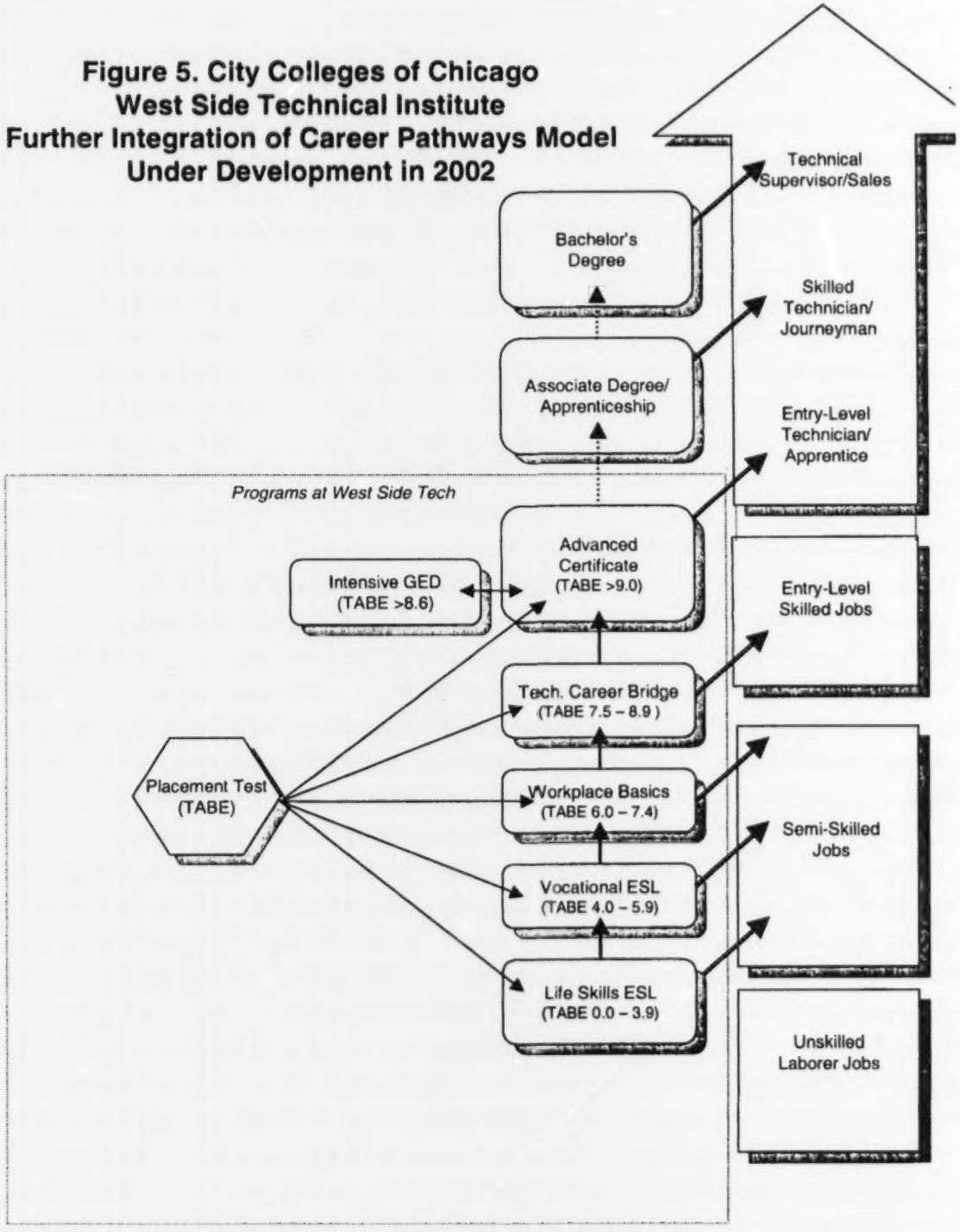
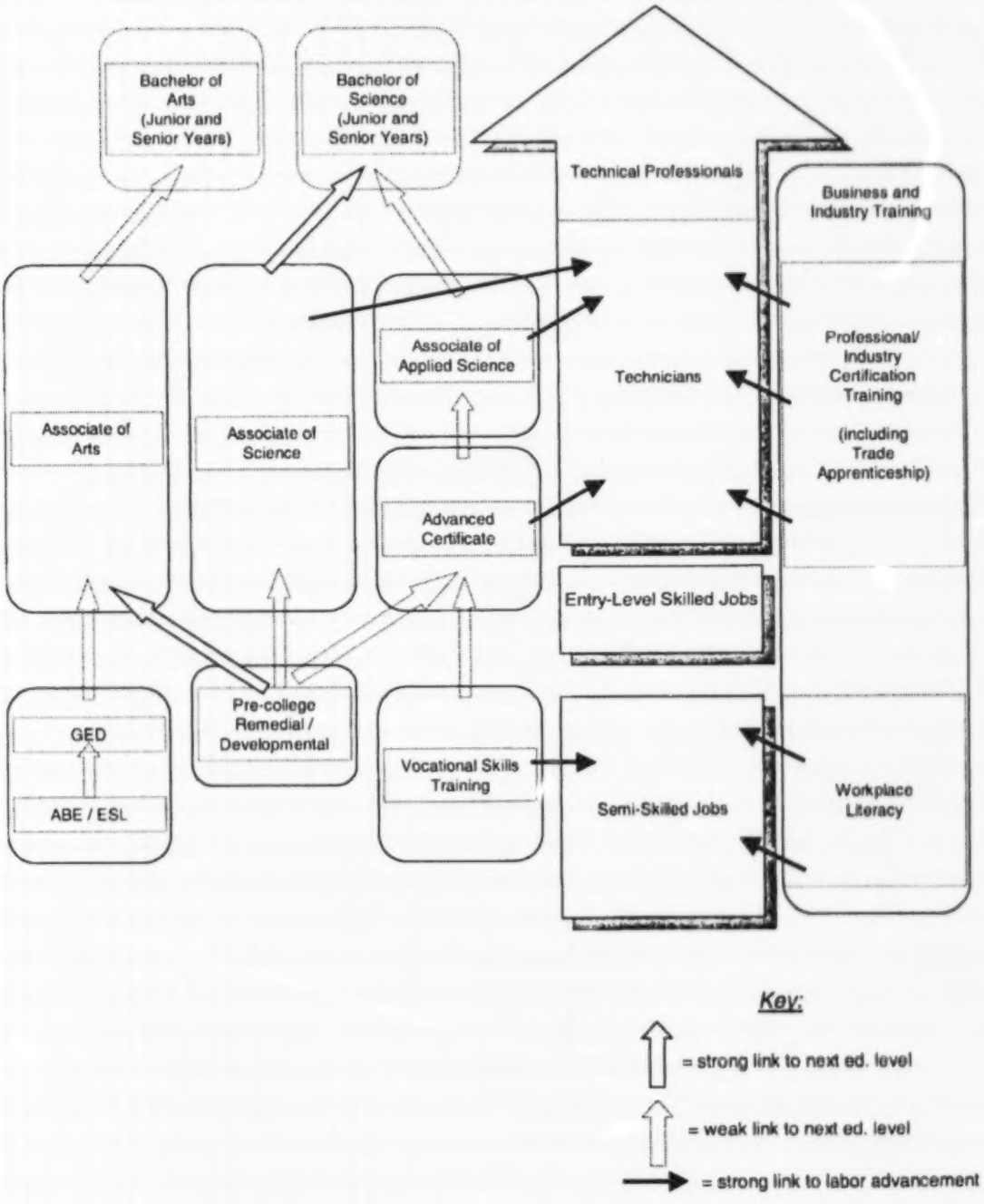

Technical Supervisor/Sales
Bachelor's Degree
Skilled Technician/ Journeyman
Associate Degree/ Apprenticeship
Entry-Level Technician/ Apprentice
Programs at West Side Tech
Advanced Certificate (TABE >9.0)
Intensive GED (TABE >8.6)
Entry-Level Skilled Jobs
Tech. Career Bridge (TABE 7.5 – 8.9)
Placement Test (TABE)
Workplace Basics (TABE 6.0 – 7.4)
Semi-Skilled Jobs
Vocational ESL (TABE 4.0 – 5.9)
Life Skills ESL (TABE 0.0 – 3.9)
Unskilled Laborer Jobs

Figure 6. (Dis)Connects among Community College Programs And between CC Programs and Labor Market Outcomes



[1] For more detail on these figures, see Jenkins (1999, 2002).

[2] The statistics in this paragraph are from NCES (1999).

[3] For an important study of the barriers to success in community college programs faced by welfare recipients and other low-wage workers see Golonka and Matus-Grossman (2001).

[4] The author and his colleagues at the University of Illinois at Chicago's Great Cities Institute have provided technical assistance on the design and evaluation of these efforts through grants from the MacArthur Foundation and National Science Foundation.

[5] Not every student who was able to advance to the advanced certificate programs went through all three bridge levels. Some only went through the Technology Career Bridge. Some students went directly from the Workplace Basics courses.

[6] Two more recent studies find that, among the poorest and least prepared community college students, extensive remedial education in reading may increase the chances that they transfer to a four-year institution (Merisotis and Phipps 2000, Cabrera et al. 2001).

[7] Nationally, among students who began their post-secondary education at a community college in 1989-90, 37% completed a certificate or degree at some institution by 1994 (five years later), while 22% completed a certificate or degree at their first institution (Berkner 1996). Nearly half (48.6%) had neither earned a degree nor were still enrolled in higher education. These figures refer to students who took at least 12 credit hours of college-level courses and declared their intent to earn a post-secondary certificate or degree.

[8] This section is based on interviews with state higher education officials and administrators, faculty and staff at several community colleges in Florida that the author participated in as part of research into state policies that facilitate adoption by community colleges of the career pathways approach. The finding of this research are reported in Alssid et al. (Forthcoming).

[9] For a report on an effort to track the employment histories of program graduates over time, see Jenkins (2002).

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